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EXAMINER

ZHOU, TING

ART UNIT PAPER NUMBER

2173

DATE MAILED: 10/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/866,394

Applicant(s)

DIMITROVA ET AL.

Examiner

Ting Zhou

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 04 August 2006.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-5, 7-15, 17-24, 26-33 and 35-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-5, 7-15, 17-24, 26-33 and 35-42 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
- Certified copies of the priority documents have been received.
 - Certified copies of the priority documents have been received in Application No. _____.
 - Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- Notice of References Cited (PTO-892)
- Notice of Draftsperson's Patent Drawing Review (PTO-948)
- Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- Notice of Informal Patent Application
- Other: _____

DETAILED ACTION

1. The Request for Continued Examination (RCE) filed on 4 August 2006 under 37 CFR 1.53(d) based on parent Application No. 09/866,394 is acceptable and a RCE has been established. An action on the RCE follows.
2. The amendments filed on 4 August 2006, submitted with the filing of the RCE have been received and entered. The applicant has added new claims 39-42. Claims 1-5, 7-15, 17-24, 26-33 and 35-42 as amended are pending in the application.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 39-42 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification on page 16, lines 21-22 describes the term "meaningful image" to refer to "a frame with a person's face, an important text, etc.". However, the specification does not mention that the meaningful image is a combination thereof of a person's face and important text. The specification merely mentions that the meaningful image can include other frames

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("etc."), however, "etc." does not provide for a specific description of the meaningful image to be a combination of a person's face and important text.

4. Furthermore, the specification does not provide for the Markush claims recited in claims 39-42 ("consisting of"). Markush claims must be provided with support in the disclosure for each member of the Markush group. As stated above, the specification does not provide adequate support for the Markush group member of "a combination thereof". The specification does not provide adequate description for the "group consisting of a person's face and important text and a combination thereof" because the specification does not support every member of the recited group. See MPEP 608.01(p).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 39-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention:

The term "a combination thereof" is vague and indefinite. The specification does not describe the "meaningful image" as being able to consist of a combination of text and a person's face; the specification does not provide for an adequate description of "a combination thereof", therefore rendering the term vague and indefinite.

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The term "important text" in claims 39-42 is a relative term which renders the claim indefinite. The term "important text" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The specification does not provide a standard or criteria for determining what text is considered important text and what text is not considered important text and therefore, it is indefinite.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-5, 7-15, 17-24, 26-33 and 35-~~38~~^{42 K.V.} are rejected under 35 U.S.C. 103(a) as being unpatentable over the article entitled "Color SuperHistograms for Video Representation", written by Dimitrova et al., and Wang et al. U.S. Patent 5,805,733.

Referring to claims 1, 11, 21 and 30, Dimitrova et al. teach an apparatus, system, method and computer executable instructions comprising a visual summary controller capable of creating a visual summary of video material (Dimitrova et al.: page 316, Figure 1), wherein the visual summary controller receives keyframes of the video material, extracts frame signatures from the keyframes to establish a plurality of family histograms and orders the plurality of family histograms to create respective superhistograms each including multiple family histograms

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(keyframes from video material is extracted to create family histograms, which are then ordered to create superhistograms) (Dimitrova et al.: page 314, right column, lines 9-25, page 315, section 2 and page 316, section 2.3; this is further shown in Figure 1). However, although Dimitrova et al. teach using the frame signatures and superhistograms to create a visual summary of video material in a broad sense (representing video segments by computing superhistograms) (Dimitrova et al.: Abstract), Dimitrova et al. fail to explicitly teach selecting representative keyframe images for each superhistogram to create a compact visual summary of the video material, wherein the representative keyframe images for each superhistogram include at least one of the first image in each family histogram, a randomly chosen image and an image that is closest to a center of each family histogram. Wang et al. teach the analysis of scenes and frames in video materials (Wang et al.: column 1, lines 53-56 and Figure 2) similar to that of Dimitrova et al. In addition, Wang et al. further teach selecting representative keyframe images for each superhistogram (a representative frame image is taken from each family histogram, i.e. set of related scenes; there are a plurality of sets of related scenes, which make up the superhistogram) (Wang et al.: column 1, lines 51-67, column 2, lines 1-24 and column 3, lines 37-65; this is further shown in Figure 3), wherein the representative keyframe images for each superhistogram include at least one of the first image in each family histogram, a randomly chosen image and an image that is closest to a cluster center of each family histogram (the representative frame images for the superhistogram, or the plurality of sets of related scenes; the representative frame for each set can be taken as the temporally medial scene in the set, i.e. the frame image that is closest to the center of the set, or family histogram) (Wang et al.: column 3, lines 37-66). It would have been obvious to one of ordinary skill in the art, having the teachings of Dimitrova et

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al. and Wang et al. before him at the time the invention was made, to modify the visual summary controller capable of extracting frame signatures from keyframes to create superhistograms of Dimitrova et al., to include the further step of selecting representative keyframes from those superhistograms and using the representative keyframe images to create a compact visual summary, taught by Wang et al. One would have been motivated to make such a combination in order to meet the need of being able to readily access and manipulate video information, by cataloguing and storing the potentially thousands of hours of video for rapid future retrieval, browsing and use, created by the increasing availability and use of digital video and the increasing integration of computer technologies and video production technologies.

Referring to claims 2, 12, 22 and 31, Dimitrova et al. teach the filtering of keyframes (merging of histograms into family histograms) and extracting frames signatures (computing color histograms) from the filtered keyframes before using the frame signatures (histograms) to create the superhistogram representing a visual summary of the video material (page 315, right column, section 2 and page 316, left column, section 2.3).

Referring to claims 3, 13, 23 and 32, Dimitrova et al. teach the use of superhistograms to cluster the filtered keyframes (the ordered merging of the family histograms to create the superhistogram), wherein the clustered keyframes (superhistogram) represents the visual summary of the video material, as recited on page 314, right column, lines 11-25 and shown in Figure 1.

Referring to claims 4 and 14, Dimitrova et al. teach the use of a histogram as the frame signature used to compute superhistograms (page 314, right column, lines 11-15).

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Referring to claims 5, 15, 24 and 33, Dimitrova et al. the use of the L1 distance measure method, L2 distance measure method, histogram intersection method, Chi-Square test and Bin-wise histogram intersection method to computer the histogram difference (page 315, right column).

Referring to claims 7, 17, 26 and 35, Dimitrova et al. teach the ability to select the family histograms (the top n largest families) to use to create the superhistogram used to create the visual summary (page 316, section 2.4).

Referring to claims 8, 18, 27 and 36, while Dimitrova et al. teach all of the limitations as applied to claims 1, 11, 21 and 30 above, Dimitrova et al. fail to explicitly teach the capability to retrieve a visual summary stored in a memory unit and causing the visual summary to be displayed in response to a user request. Wang et al. teach the analysis of scenes and frames in video materials (Wang et al.: column 1, lines 53-56 and Figure 2) similar to that of Dimitrova et al. In addition, Wang et al. further teach the capability of letting a user select a visual summary for viewing, retrieving that visual summary from memory and displaying it in response to the user's request (displaying visual summaries of scenes in a movie bar and allowing users to access the summaries by selecting the segments corresponding to the scenes) (Wang et al.: column 2, lines 16-29 and shown in Figures 2 and 3). It would have been obvious to one of ordinary skill in the art, having the teachings of Dimitrova et al. and Wang et al. before him at the time the invention was made, to modify the visual summary controller capable of extracting frame signatures from keyframes to create superhistograms of Dimitrova et al., to include the retrieval and display of the visual summary in response to a user request, as taught by Wang et al. One would have been motivated to make such a combination to give users the flexibility to

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select which scenes to watch, saving them time from having to browse through all of the other irrelevant scenes; furthermore, because the increasing availability and use of digital video and the increasing integration of computer technologies and video production technologies have produced the need to be able to readily access and manipulate video information, it would have been advantageous to make such a combination in order to provide users a way to summarize the content of video quickly and easily, in order to catalogue and store the potentially thousands of hours of video for rapid future retrieval, browsing and use.

Referring to claims 9, 19, 28 and 37, Dimitrova et al. teach the use of the visual summary obtained from the superhistograms to access at least a portion of the video material (classifying and searching in video archives), as recited on page 317, section 4.2.

Referring to claim 10, 20, 29 and 38, while Dimitrova et al. teach all of the limitations as applied to claims 1, 11, 21 and 30 above, Dimitrova et al. fail to explicitly teach the creation of new video material using the compact visual summaries. Wang et al. teach the analysis of scenes and frames in video materials (Wang et al.: column 1, lines 53-56 and Figure 2) similar to that of Dimitrova et al. In addition, Wang et al. further teach the creation of new video material using the compact visual summaries (a collage made up of representative frames for each set of summarized scenes) (Wang et al.: column 3, lines 53-57). It would have been obvious to one of ordinary skill in the art, having the teachings of Dimitrova et al. and Wang et al. before him at the time the invention was made, to modify the visual summary controller capable of extracting frame signatures from keyframes to create superhistograms of Dimitrova et al., to include the creation of new video material, as taught by Wang et al. It would have been advantageous for one to utilize such a combination in order to conserve processor time and storage space by

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utilizing the already existing visual summaries in the creation of new visual materials; furthermore, because the increasing availability and use of digital video and the increasing integration of computer technologies and video production technologies have produced the need to be able to readily access and manipulate video information, it would have been advantageous to make such a combination in order to provide users a way to summarize the content of video quickly and easily, in order to catalogue and store the potentially thousands of hours of video for rapid future retrieval, browsing and use.

Referring to claims 39-42, Dimitrova et al., as modified, teach the representative frame including at least one of the most meaningful image in each superhistogram (the longest scene, which is most indicative of the content of the related scenes) (Wang: column 3, lines 59-62) selected from the group consisting of a person's face and important text and a combination thereof (Wang: Figure 3 shows a plurality of frames, with frames that display images of people, including the person's face).

Response to Arguments

7. Applicant's arguments filed 4 August 2006 have been fully considered but they are not persuasive.

8. The applicant states that each scene in Wang includes a plurality of frames or images and thus, correspond to a family of histograms, and that the set of scenes corresponds to a superhistogram, and therefore, Wang teaches that there is a single representative frame for each superhistogram instead of a representative frame from each family histogram of the

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superhistogram. The examiner respectfully disagrees. Firstly, the examiner respectfully disagrees with the applicant's characterization of the Wang reference. Wang teaches that the scenes are grouped into sets of related scenes (column 3, lines 37-52); therefore, each *set* of related scenes, comprising a plurality of scenes, is a family histogram, and the plurality of sets of related scenes together make up a superhistogram. A representative keyframe is taken from each set of related scenes, i.e. from each family histogram (column 3, lines 53-63), and therefore, a plurality of keyframe images are taken for the superhistogram. Wang further teaches that the representative keyframe taken from a set of related scenes, i.e. the representative keyframe taken from the family histogram can be the medial scene in the set, i.e. center scene in the family histogram (column 3, lines 53-63). Since the keyframe image taken from family histogram can be the image that is closest to a center of the family histogram, there are a plurality of keyframe images for the superhistogram of the plurality of sets of related scenes that are each the image that is closest to a center of their respective family histograms. In view of the above arguments, the examiner respectfully argues that the combination of Dimitrova and Wang teaches the subject limitations.

9. Furthermore, the applicant argues that Wang does not teach the recited limitation of the most significant frame including a person's face and/or an important text. The examiner respectfully disagrees. As shown in Figure 3 of Wang, the displayed frames show a plurality of images of people, the images including the showing of the person's face.

Conclusion


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ting Zhou whose telephone number is (571) 272-4058. The examiner can normally be reached on Monday - Friday 7:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cabeca can be reached at (571) 272-4048. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TZ


Kieu Vu
Primary Examiner